

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Oren on 10/9/2008.

(1) Regarding claim 1:

Replace line 5 by the following:

---respectively accumulating input signals of a channel I and a channel Q in an accumulating buffer, and---

Replace line 17 by the following:

---judging that synchronization has been obtained by a synchronization searching unit in a corresponding one of---

(2) Regarding claim 8:

Replace line 3 by the following:

---respectively accumulating I and Q signals in an accumulating buffer and obtaining two absolute values for---

Replace line 14 by the following:

---judging that synchronization has been obtained by a synchronization searching unit at the corresponding---

(3) Regarding claim 12:

Replace claim 12 by the following:

**---An apparatus in a mobile communication system comprising:
first and second accumulation buffers to respectively accumulate I and Q signals;**

first and second absolute value calculators to obtain an absolute value from an output at the first accumulation buffer and to obtain an absolute value from an output of the second accumulation buffer;

an adder to add the absolute value output from the first absolute value calculator and the absolute value output from the second absolute value calculator;

an estimator to estimate a candidate region for initial synchronization from the added absolute values; wherein the estimator searches a region having a high power distribution from an absolute value of one frame and to estimate a region with a length of a power distribution corresponding to a search range as a candidate region; and

a synchronization searching unit to obtain an initial synchronization of a terminal by correlating the estimated candidate region and a synchronous code.--

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(4) Regarding claim 14:

Claim 14 is cancelled.

(5) Regarding claim 15:

Replace claim 15 by the following:

---The apparatus of claim 12, wherein the search range comprises 64 chips,---

Allowable Subject Matter

2. Claims 1, 3-5, 8-10, 12-13, 15-21, and 23-30 are allowed.
3. The following is an examiner's statement of reasons for allowance:

(1) Regarding claims 1, 3-5, 8-10, 21, and 23-30:

The present invention describes a method and apparatus of initial synchronization of a mobile communication system comprising selecting a region for an initial synchronization from an input signal, wherein selecting the region comprises respectively accumulating input signals of a channel I and a channel Q, and obtaining an absolute value for the channel I and an absolute value for the channel Q, adding the absolute value for the channel I and the absolute value for the channel Q to obtain a power distribution, and estimating a region as a candidate region from the power distribution obtained by adding the absolute value for the channel I and the absolute value for the channel Q, the estimated region having a high power distribution in the power distribution of the added absolute values; and obtaining an initial synchronization by correlating the selected region and a synchronous code, wherein obtaining the initial synchronization includes obtaining a correlation value of each of a plurality of candidate

region, and judging that synchronization has been obtained in a corresponding one of the candidate regions if a specific correlation value is greater than a threshold value. The closest prior art, Van Der Wal et al. (US 2005/0053048 A1) and Snell et al. (US 4,259,740) together disclose a similar method and apparatus but fail to disclose adding the absolute value for the channel I and the absolute value for the channel Q to obtain a power distribution, and estimating a region as a candidate region from the power distribution obtained by adding the absolute value for the channel I and the absolute value for the channel Q, the estimated region having a high power distribution in the power distribution of the added absolute values. This distinct feature has been added to the independent claims 1, 8I and 21, thus rendering claims 1, 3-5, 8-10, 21, and 23-30 allowable.

(2) Regarding claims 12-13, 15-20:

Claim 12 describes an apparatus in a mobile communication system comprising first and second accumulation buffers to respectively accumulate I and Q signals; first and second absolute value calculators to obtain an absolute value from an output at the first accumulation buffer and to obtain an absolute value from an output of the second accumulation buffer; an adder to add the absolute value output from the first absolute value calculator and the absolute value output from the second absolute value calculator; an estimator to estimate a candidate region for initial synchronization from the added absolute values; wherein the estimator searches a region having a high power distribution from an absolute value of one frame and to estimate a region with a length of a power distribution corresponding to a search range as a candidate region;

and a synchronization searching unit to obtain an initial synchronization of a terminal by correlating the estimated candidate region and a synchronous code. The closest prior art, Van Der Wal et al. (US 2005/0053048 A1) and Snell et al. (US 4,259,740) together disclose a similar apparatus but fail to disclose an adder to add the absolute value output from the first absolute value calculator and the absolute value output from the second absolute value calculator; an estimator to estimate a candidate region for initial synchronization from the added absolute values; wherein the estimator searches a region having a high power distribution from an absolute value of one frame and to estimate a region with a length of a power distribution corresponding to a search range as a candidate region. This distinct feature has been added to the independent claim 12, thus rendering claims 12-13, 15-20 allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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10/14/2008

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